DEC STD 140-0 Documentation, Data, and Release Requirements for Printed-Wiring Boards, Modules, and Backplanes — Introduction

DOCUMENT IDENTIFIER: A-DS-EL00140-00-0000 Rev J, 27-Sep-1991

ABSTRACT: This section of DEC STD 140 provides information about the ownership and revision process for all sections of this standard: the DEC STD 140 Committee Charter, information on waivers and the grandfather clause, and a summary of the content of this standard. This document shall be used with DEC STD 140-1 through DEC STD 140-7.

APPLICABILITY: The documentation requirements defined in this standard are mandatory for all 50-class boards, 54-class modules, and 70-class/option backplanes released by Digital.

STATUS: APPROVED 27-Sep-1991; type VTX SMC for current status.

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APPROVAL: This document has been reviewed and recommended for approval by the General Review Group for its category and the DEC STD 140 Committee.

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1 INTRODUCTION

It is manufacturing policy that the release of engineering design documentation be in a form that allows manufacturing the flexibility to provide the appropriate process tools required to produce the product, and when business decisions dictate, to provide for the transfer of products and new manufacturing processes among plants.

DEC STD 140 Documentation, Data, and Release Requirements consists of the following sections. Each section contains a separate Table of Contents and revision status.

Section/Title	Responsible Person
DEC STD 140-0 Documentation, Data, and Release Requirements for Printed-Wiring Boards, Modules, and Backplanes - Introduction	Kathy Bailey Bob Dubois
DEC STD 140-1 Documentation Requirements for Printed-Wiring Boards (50-Class)	Lee Stogner
DEC STD 140-2 Documentation Requirements for 54-Class Modules and Backplanes	Mike Brennan
DEC STD 140-3 Documentation Requirements for Backplanes (54- and 70-Class)	Jerry Benjamin
DEC STD 140-4 Etch Board and Modules Release Verification Requirements and Procedures—Data Requirements	Mike Terella
DEC STD 140-5 Prototype Release Requirements for Printed-Wiring Boards, Modules, and Backplanes	Bob Dubois John Graham
DEC STD 140-6 Production Release Requirements for Printed-Wiring Boards, Modules, and Backplanes	Bob Dubois John Graham
DEC STD 140-7 Engineering Supervised Build (ESB) Release Requirements for Printed-Wiring Boards, Modules, and Backplanes	Bob Dubois John Graham
Index to DEC STD 140 Documentation, Data and Release Requirements for Printed-Wiring Boards, Modules, and Backplanes	
EL-EN140-00, *Design Drawing Examples*	Bob Dubois

1.1 PURPOSE

DEC STD 140 defines the *minimum* documentation, data, and release requirements for 50-class printed wiring boards (PWBs), 54-class modules and backplanes, and 70-class backplanes and other 70-class PWB assemblies to ensure the timely flow of accurate data from design engineering to manufacturing. Flowcharts are provided for each process.

1.2 SCOPE

The requirements of this standard apply to all PWBs, modules, and backplanes designed and/or manufactured by Digital.

1.3 DEFINITIONS

Refer to *DEC STD 016-0 Printed Wiring Boards and Module Manufacturing Terminology* for definitions of terms used in this document.

1.4 WAIVERS TO THIS STANDARD

All waivers to this standard must be obtained by following the procedure outlined in this heading. The procedure in *DEC STD 066-2 Waivers to Digital Design Standards* does not apply. All approved waivers to this standard will be reviewed on a quarterly basis to determine if an ECO to DEC STD 140 may be required.

Waivers are required for all PWB, module, and backplane technical data packages that do not comply with the requirements of this standard. Waiver forms will be available from Site Producibility representatives and will be stored in the central Producibility Automation and Cost Estimator (PACE) data base in the Pre-Design Producibility (PDP) package.

Waivers are prepared by the responsible product engineer designated on the Chief Engineer's Option/Module List using the format shown in Figure 1. All waivers shall include the following information:

a. An explanation of the problem and its impact on manufacturing in terms of cost and time.

b. A list of the part numbers affected.

The responsible product engineer is also responsible for acquiring the following approvals on any proposed waiver:

a. Engineering Systems Program Manager (or equivalent)

b. Manufacturing Systems Program Manager (or equivalent)

c. Plant Manufacturing Engineer at the location where the product will be built

d. Site Producibility Engineer

The DEC STD 140 section owner must also sign the waiver if the site Producibility Engineer determines that the waiver will have a major impact on manufacturing.

The responsible product engineer has the option of bringing a rejected waiver to the responsible person for the section of DEC STD 140 to be waived. The responsible person will then bring the waiver before the DEC STD 140 Committee with recommendations for approval or rejection.

A waiver rejected by the committee can be appealed in accordance with the procedures of *DEC STD 001-0 Management of Technical Standards and Related Documentation* by contacting the Standards Process Manager.

Figure 1: Module/Backplane Documentation Waiver Form

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DEC STD 140 WAIVER FORM

A waiver is required for modules/power supplies/backplanes that do not comply with the documenation requirements of DEC STD 140. Waivers are prepared by the design engineer and must include the following information:

PDQ # : Date :
Board No : Etch Rev :
Module No: Module Rev:

STATEMENT OF PROBLEM:

IMPACT TO MANUFACTURING IN TIME/COST:

RESOLUTION (HOW AND WHEN):

QUANTITY OF MODULES TO BE PRODUCED UNDER THIS WAIVER:

REQUIRED APPROVALS:

ENGINEERING SPM (or equivalent)_____ DATE:_____

MANUFACTURING SPM _____ DATE:_____

MANUFACTURING PLANT ENGINEER_____ DATE:_____

PRODUCIBILITY ENGINEER_____ DATE:_____

MAJOR IMPACT (Y/N) _____

If the producibility engineer determines that the waiver will have a major impact on manufacturing, the following signatures are also required:

PWB/ASSEMBLY PROGRAM MANAGER_____ DATE:_____

DEC STD 140 SECTION OWNER_____ DATE:_____

1.5 GRANDFATHER CLAUSE

The documentation for all new PWBs, modules, and backplanes shall meet the requirements of the DEC STD 140 revision in effect at the time the documentation is released to manufacturing. For the re-layout of existing PWBs, modules, or backplanes documentation may be updated to current standards.

Design Engineering and Producibility determine if documentation should be updated when an ECO is required for the re-layout of existing PWBs, modules, or backplanes.

1.6 ECR PROPOSAL AND REVISION CONTROL OF DEC STD 140

Each section of DEC STD 140 shall be under separate revision control and shall have its own table of contents and revision status. Revisions to a particular section of this standard require an Engineering Change Request (ECR) proposal form, which shall be submitted to the responsible person for that section. The ECR format is shown in Figure 2. The format may be copied from this standard or may be reproduced electronically.

The responsible person for each section shall review all ECR proposal forms for that section and submit these proposals with recommendations for acceptance or rejection to the DEC STD 140 Committee. Final acceptance by the DEC STD 140 Committee is required. The name of the responsible person for each section appears on the document management page of that section.

Standards and Methods Control is responsible for preparing, obtaining approval signatures, and distributing all ECRs to this standard.

Figure 2: ECR Proposal Format

ENGINEERING CHANGE REQUEST (ECR) TO DEC STD 140	
Date of Proposal: Submittor: DTN: Mailstop: ENET:	Committee action date: Action:
A–DS–EL00140–00 Section: Rev: Page: Para: Current text: Proposed Text: Justification, References: Impact: Reviewer's Comments: Committee Action:	

2 DEC STD 140 COMMITTEE CHARTER

The purpose of the DEC STD 140 Committee is to oversee, update, and improve the content of DEC STD 140. The committee is responsible for ensuring that the document is accurate and up to date, and that the documentation and release processes for PWBs, modules, and backplanes comply with the requirements of this standard.

3 COMMITTEE MEMBERSHIP

DEC STD 140 Committee members are responsible for reviewing and approving proposed ECRs to DEC STD 140.

Committee members, or their approved designated alternates, are responsible for participating in all committee meetings and for submitting action and agenda items to a committee co-chairperson at least three weeks prior to a committee meeting.

Committee members are responsible for nominating alternate representatives. All nominees must be approved by the DEC STD 140 Committee. Alternates will have the authority to represent their domain and will have full voting rights at committee meetings. The DEC STD 140 chairperson will maintain a current list of committee members and alternates.

Committee members shall be actively involved in all decisions relating to their domain. This includes:

- Consulting with affected domains on technical issues and calling subcommittee meetings to resolve such issues.
- Establishing agreement between the affected domains before bringing resolutions to the DEC STD 140 Committee.
- Working issues that are relevant to the standard and to the entire domain represented.
- Knowing the content of the standard and being able to add value to the committee by recommending improvements to the standard's technical accuracy and clarity.

Table 1: DEC STD 140 Committee Membership

Co-Chairpersons/Producibility	Kathy Bailey Bob Dubois	SALEM::BAILEY_K KNGBUD::DUBOIS
Producibility	John Graham	FRSBEE::GRAHAM
Advanced CAD	Gerry Couper	CADSE::COUPER
Customer Service	Bob Kudera	SETH::KUDERA
PWB/PWB Test	Lee Stogner	RAVEN1::STOGNER
Modules/Power Supplies	Mike Brennan	DRUID::BRENNAN
Module Test	TBD	
Backplanes	Jerry Benjamin	POLAR::BENJAMIN
Technical Information Engineering	Mike Terella	CADSE::TERELLA
CAD Design	Dave Drozd Lenny Haywoood	RATPAK::DROZD LYNYRD::HAYWOOD
GIA PWB Test	Alex Mango	BOARDS::MANGO
Standards and Methods Control	Jan Litchfield Eleanor Jacobi	JOKUR::LITCHFIELD JOKUR::JACOBI

Representatives from PWB manufacturing and assembly plants and Product Business Units are included on the technical review list.

4 OPERATING PROCEDURES

The DEC STD 140 Committee will follow the specified procedures for co-chairperson responsibilities, appointment of committee members, agenda items, and resolution of agenda items.

4.1 CO-CHAIRPERSON RESPONSIBILITIES

The Committee co-chairpersons are responsible for:

- Scheduling quarterly committee meetings
- Notifying committee members of scheduled meetings
- Preparing committee agendas
- Distributing minutes to committee members
- Providing action items to committee members after a meeting
- Recommending time frames for submitting results of action items
- Maintaining a current list of committee members and alternates

4.1.1 Agenda Items

Committee members shall submit agenda items to a co-chairperson at least three weeks before a scheduled meeting. Any person outside the committee may propose agenda items to a committee member.

4.1.2 Resolution of Agenda Items

Concensus is required for all technical issues. If an issue cannot be resolved, a subcommittee will be formed to resolve the issue and make a recommendation to the committee. The subcommittee will represent all affected domains. The subcommittee chairperson will be appointed by the DEC STD 140 Committee.

5 RESPONSIBILITIES

The following subheads define the responsibilities for individuals and groups.

5.1 RESPONSIBLE PRODUCT ENGINEER

The responsible product engineer, as defined on the Chief Engineer's Option/Module List, shall ensure that the documentation and data of PWBs, modules, and backplanes meet the requirements of DEC STD 140. Technical services groups may be used to accomplish this responsibility.

The responsible product engineer shall also ensure that vendors under contract to design PWBs, modules, and backplanes for Digital comply with the requirements of this standard.

5.2 ENGINEERING DESIGN SITES

The engineering design site responsible for the product shall ensure the integrity of the documentation and the release data that describes module designs. Engineering design sites are also responsible for releasing the documentation and data to Documentation Control.

See DEC STD 140-1, -2, and -3 for documentation requirements. DEC STD 140-4 defines release data requirements.

5.3 SYSTEMS AND SUPPORT ENGINEERING (SASE)

Sustaining engineering is responsible for documentation and data content after it is released to manufacturing.

5.4 DESIGN SITE PRODUCIBILITY

Design Site Producibility is responsible for verifying that the module design data is acceptable to manufacturing to generate the production tools to build PWBs, modules, and backplanes. Producibility is also responsible for defining relevant manufacturing data process parameters to be used in documentation and release data.

5.5 RELEASE SITES

Release sites are responsible for archiving manufacturing data.

5.6 MANUFACTURING DATA SITES

Manufacturing data sites are responsible for creating the working tools and storing manufacturing and release data.

5.7 DOCUMENTATION CONTROL

Each document control area is responsible for ensuring that part and document identifiers meet the requirements of *DEC STD 012 Part Identification Standard* (all sections) and *DEC STD 185 Documentation of Computer Media in the Engineering Documentation System* (all sections). They are also responsible for controlling release documentation in hard copy or electronic form, and maintaining DOCS (the document control file that replaced DCF).

5.8 CENTRAL SERVICES LIAISON (CSL)

CSL is responsible for providing a transport service for hard copy manufacturing documentation and data between sites and centrally located functional organizations. Documentation and data may also be transmitted using the engineering network.

APPENDIX A REFERENCED DOCUMENTS

A.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-00001-00	*DEC STD 001-0 Management of Technical Standards and Related Documentation*
EL-00012-00	*DEC STD 012-0 Part Identification Standard*
EL-00016-00	*DEC STD 016-0 Printed-Wiring Board and Module Manufacturing Terminology*
EL-00066-02	*DEC STD 066-2 Waivers to Digital Design Standards*
EL-00140-00	*DEC STD 140 All Sections*
EL-00140-01	*DEC STD 140-1 Documentation Requirements for Printed-Wiring Boards (50-Class)*
EL-00140-02	*DEC STD 140-2 Documentation Requirements for 54-Class Modules and Backplanes*
EL-00140-03	*DEC STD 140-3 Documentation Requirements for Backplanes (54- and 70-Class)*
EL-00140-04	*DEC STD 140-4 Etch Board and Module Release Verification Requirements and Procedures—Data Requirements*
EL-00140-05	*DEC STD 140-5 Prototype Release Requirements for Printed-Wiring Boards, Modules, and Backplanes*
EL-00140-06	*DEC STD 140-6 Production Release Requirements for Printed-Wiring Boards, Modules, and Backplanes*
EL-00140-07	*DEC STD 140-7 Engineering-Supervised Build (ESB) Release Requirements for Printed-Wiring Boards, Modules, and Backplanes*
EL-00140-IN	*Index to DEC STD 140 Documentation, Data, and Release Requirements for Printed-Wiring Boards, Modules, and Backplanes*
EL-00185-00	*DEC STD 185-0 Documentation of Computer Media in the Engineering Documentation System*
EL-EN140-00	*Design Drawing Examples*

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